1999 National Conference on State Building Energy Codes

Keynote Address
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Introduction and Welcome

It's an honor to join you as we work together to advance the appreciation of energy saving energy codes. I want to thank our hosts, the Washington State University Energy Program, for helping sponsor this training session. They have put together great sessions and have convened a large and diverse gathering. You represent state and local code officials, state energy offices, utilities, Federal agencies and national energy laboratories. I like to think you are all advocates for greater energy efficiency and opponents of energy waste. With leaders from national code organizations and great, long-time code and efficiency champions like Jake Fey from the City of Tacoma, we and our colleagues around the country have the collective wisdom to advance the next generation of energy efficiency buildings codes.

We're here at a time when energy consumption continues to rise, when home energy costs are rising and when the resulting pollution threatens our globe. Some of you may see yourselves as humble public servants, as code officials, as members of the building industry. You are all that and more. I wanted to come here today to salute you and help you understand your work is far more important than simply checking for code compliance, as important as that is. You help preserve our nation's natural resources, save families money, and you are protecting the global environment.

- You are drivers of the American economy.
- You are protectors of our environment.
- You are providers of comfort and affordable lifestyle.
- You are transformers of our energy marketplace.
- You are improvers of health care.

Let me put this in perspective. Our nation spends $240 billion on the energy needed to run our buildings. That's up from the previous year of $220 billion. Energy in buildings uses one-third of all the energy used in the entire country and two-thirds of all the electricity. Energy in buildings is responsible for one-third of the carbon dioxide (CO_2), one-half of the sulfur dioxide (SO_x) and one-quarter of the nitrogen oxide (NO_x) produced in the country. A typical home is responsible for twice as much pollution as a typical car. There is one other fact that troubles me greatly. The American Lung Association estimates that pollution causes over $6 billion in lung disease each year. It's not the $6 billion that is so important, although that is an astonishing number, it is the fact that lung disease affects kids the most.

And the problem is not going away. Construction is booming. And with each inefficient house, each inefficient office building or school, we are leaving behind 30-50-100 years of a wasteful legacy. We anticipate 24 million homes over the next 15 years. And 23 billion square feet of commercial and industrial buildings. And the existing 84 million homes and non-residential buildings represent enormous opportunity, since more than half the buildings standing in 2010, will have been build prior to 1990 - - and most will need major renovation by that time. If we make those buildings energy efficient, we can save literally tens of billions of dollars while getting productivity, comfort and environmental benefits. How can a topic that has such enormous benefits be so contentious? To me, energy efficient building codes have proven their merit.

Let me get to the point of your work and our work here these three days. We at DOE are responsible for a variety of related energy efficiency programs (from appliance standards and labeling and building energy research and development to Energy Star, low income weatherization and state grants), but building codes offer some of the great opportunities for long term savings. The buildings we build in the US are expected to last at least through the thirty year house mortgage and generally should be considered buildings for the entire next century and beyond. Building them right the first time is much more cost effective than fixing them when they open. Today I want to share four "truths" about energy saving codes.

1. Better Energy Codes Save Energy and Money and Prevent Air Pollution

- A study conducted by the Alliance to Save Energy found that if the states in the analysis used the 1993 Model Energy Code, American home buyers would save 7 trillion Btu, $81 million, and almost 226,000 tons of air pollution each year. These energy savings are enough to serve the energy needs of all the new homes built in a typical year in Michigan and Pennsylvania combined.
- The typical home buyer often enjoys positive cash flow immediately or easily within two years. The energy bill savings (about $122/year) typically exceed the small increase in mortgage payments. So the 1993 MEC makes housing more affordable for the initial home buyer. The same would be true for major renovations and remodeling.
- Over 30 years, the net present value of the dollar savings is $529 million for each year's production of new homes built to the 1993 MEC, or about $800 per home. So the nation's home buyers as a whole benefit from the 1993 MEC, as well as the first buyer of the home.
- In commercial buildings, the new ASHRAE 90.1R should produce significant savings for the owners and operators of those buildings. This is particularly important since major builders want to be more energy efficient. The National Realty Committee, which represents over 200 of the largest builders and developers in the nation (with members responsible for buildings such as the Sears Tower, World Trade Center and Empire State Building), has joined forces with us to help reduce energy consumption 30% and create a new generation of "green" buildings.
- As we move toward implementation of MEC 95 and the 1998 International Energy Conservation Code (IECC) and ASHRAE 90.1R, these savings should multiply and produce even more consumer and building owner benefits.

2. Energy Codes are Vital to Housing and Commercial Building Affordability

- They lower maintenance costs.
- They increase building longevity.
- They reduce energy expenditures.
- That expands the Great American Dream of increased home ownership *and* helps building operators get more value for their buildings.

3. Energy Codes Improve Air Quality

- The MEC also prevents the emission of 250,000 tons of carbon dioxide, sulfur dioxide, and other gases. ASHRAE 90.1R will produce commensurate savings.
- Keep in mind these codes also improve indoor air quality by assuring the proper ventilation and air turnover. There are a number of reports that show productivity improvement from better indoor environment. (I commend Joe Romm's book, *Lean and Clean Management,* to you.) And there are scary studies (one from a study conducted by our Oak Ridge National Lab) that report one in five schools have poor indoor air quality.
- These codes and related energy efficiency strategies offer a sensible, low-cost insurance against the potential effects of climate change.

4. Codes Don't Limit the Introduction of New Technologies

There is a common misconception that building codes are restrictive to new technology. In and of themselves, they aren't. Occasionally the interpretation of them can be limiting, but it doesn't have to be. Let me give you perhaps the best two examples we have at the moment of the introduction of new technology. In Los Angeles, a new *Building America* project, called Village Green in Sylmar, has 186 homes that are expected to save 40-50% of the energy of typical homes nearby. They look great, plus they feature BP Solar panels on the roofs and a new residential scale gas absorption (GAX) chiller. That could have been a show stopper or slowed the project down without a code official willing to include advanced technologies. In the heart of Manhattan, at 4 Times Square, a new 48 story high rise is going up. It's the first new high rise in midtown in a decade. In the country's largest city with enough excuses to say no, the Durst organization incorporated dozens of efficiency improvements and obtained approval for photovoltaic solar cells on the upper 14 stories - - *and* fuel cells on the 4th floor!

These technologies and the supporting building codes that allow them:

- Increase competitiveness in the market, and
- Stimulate new product development
- They'll make your jurisdictions and communities leaders for the next generation of buildings. They'll attract green builders and developers who want to be in a receptive city.

Issues Facing Us

As we move toward the 21st Century, we have the enormous opportunity I've laid out. However, there are still those who oppose the kind of progress we are seeing. ASHRAE was almost paralyzed for a year as it considered the commercial building code with its energy savings content.

The good news is that the ASHRAE Board voted to publish ASHRAE 90.1R, which is an improvement. Although there are still areas that can be improved, it is worth supporting the ASHRAE leadership for advancing the revised code. I fear we will see appeals and have difficulty implementing the commercial energy code and I urge you to be champions for widespread adoption - - and its subsequent strengthening.

On the residential side, we face an enormous challenge. Our responsibility at DOE is to see that the subsequent building codes "are equal to or better than the Model Energy Code." The mortgage industry looks to us to certify that a code complies. In this case, there are two options being proposed. We are responsible for determining whether the energy chapter of the proposed International Residential Code (IRC) and the provisions of the International Energy Conservation Code (IECC) meet or exceed the previous energy code.

The International Residential Code is being finalized for the 2000 code cycle. Chapter 11 of the International Residential Code addresses energy. The current draft of Chapter 11 is being promoted as a simplification of the existing code. As it is currently constructed, it appears it does *more* than simplify, it <u>weakens</u> the energy provisions. If we were asked today if it "meets or exceeds" the previous code, we would have to say "No." However, the International Code Council (ICC) is considering improvements in its International Energy Conservation Code (IECC) that look very promising. Although we haven't issued our final determination, the preliminary recommendation is that it provides the simplification we all seek, plus it has substantial improvements in the way it handles energy issues.

Last spring, the Residential Code Development Committee and the Code Officials made differing recommendations on the energy chapter of the IRC. That means this fall, they will have a chance to assure we make progress and don't take a dangerous step back from energy efficiency. There is an IRC proposal on the table to directly reference the IECC, as the International Building Code does. There is another proposal to rewrite the energy chapter of the IRC using the simplified approach in the IECC. This will assure that the two codes are consistent. Either of them or a combination of the proposals will work.

This is a watershed, a major moment in code history. And where you have a role to play, I urge you to be leaders who can embrace the simplification <u>and</u> strengthening of the next generation of energy savings building codes, whether it be the proposed International Energy Conservation Code or the International Residential Code, amended to incorporate the simplified IECC.

<u>Summary</u>

As we approach the next century with the addition of millions of homes and billions of square feet of commercial space, your work and our partnerships are more important than ever. Building performance is more and more critical. As President Clinton remarked during a National Geographic Society meeting on the subject of Global Climate Change, "....what sustains any civilization, and now what will sustain all of our civilizations, is the constant effort at renewal, the

ability to avoid denial and to proceed into the future in a way that is realistic and humane, but resolute." What we are discussing here literally has the importance of sustaining our civilization. That's why this conference is so important. Why it's so essential that you share information here with your peers, take the lessons home, use them with your colleagues, and apply them. **You** can be the champion to inspire your colleagues and communities to action.

Keep up your local efforts, -- you can truly make a difference -- locally, and globally. Keep me informed on what's working and what's not. And please let us know how the Department of Energy can help you make a difference in your community.

All of us here have a special responsibility. Our work carries with it an economic, an environmental, and I'd add a *moral* imperative to act, to apply our knowledge, to be advocates for energy efficiency and renewables.

When we all do our jobs well, we can:
- save our organizations, governments and communities tens of billions of dollars,
- advance technologies that will revolutionize the way we operate our buildings,
- truly make our buildings more affordable and comfortable.
- improve the workplace environment and worker productivity,
- create tens of thousands of domestic jobs,
- take responsibility for our manmade pollution, and
- lead the way to a cleaner environment and generations of prosperity.

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